

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (canceled).

2. (currently amended): ~~The~~ An ultrasonic transmitting and receiving apparatus according to claim 1 comprising:

an ultrasonic transducer array including a plurality of ultrasonic transducers arranged in a matrix form;

waveform information setting means for setting waveform information to be used for transmitting a plurality of ultrasonic beams substantially simultaneously, each of which is synthesized by a plurality of ultrasonic signals having amplitude and phase characteristics represented by Bessel function; and

drive signal generating means for generating a plurality of drive signals for respectively driving said plurality of ultrasonic transducers included in said ultrasonic transducer array on the basis of the waveform information set by said waveform information setting means,

wherein said waveform information setting means sets said waveform information so that said plurality of ultrasonic beams are transmitted from different areas included in said ultrasonic transducer array, respectively.

3.-4. (canceled).

5. (currently amended) The ultrasonic transmitting and receiving apparatus according to claim 2, further comprising:

delay time setting means for setting delay time of the ultrasonic signals in said drive signal generating means so that said plurality of ultrasonic beams are steered; and

image generating means for generating an ultrasonic image on the basis of detection signals obtained by receiving ultrasonic echoes.

6. (canceled).

7. (currently amended): The ultrasonic transmitting and receiving apparatus according to claim ~~4~~2, further comprising:

control means for controlling at least one of a position of said ultrasonic transducer array and an orientation of an aperture thereof; and

image generating means for generating an ultrasonic image on the basis of detection signals obtained by receiving ultrasonic echoes.

8. (canceled).

9. (currently amended): ~~The~~ An ultrasonic transmitting and receiving apparatus according to ~~claim 3~~, further comprising:

an ultrasonic transducer array including a plurality of ultrasonic transducers arranged in a matrix form;

waveform information setting means for setting waveform information to be used for transmitting a plurality of ultrasonic beams substantially simultaneously, each of which is synthesized by a plurality of ultrasonic signals having amplitude and phase characteristics represented by Bessel function;

drive signal generating means for generating a plurality of drive signals for respectively driving said plurality of ultrasonic transducers included in said ultrasonic transducer array on the basis of the waveform information set by said waveform information setting means;

control means for controlling at least one of a position of said ultrasonic transducer array and an orientation of an aperture thereof; and

image generating means for generating an ultrasonic image on the basis of detection signals obtained by receiving ultrasonic echoes,

wherein said waveform information setting means sets said waveform information so that said plurality of ultrasonic beams are transmitted from the same area included in said ultrasonic transducer array.